



John A. Krakuszeski  
Vice President  
Brunswick Nuclear Plant  
8470 River Rd SE  
Southport, NC 28461  
o: 910.832.3698

10 CFR 50.73

September 21, 2020  
Serial: RA-20-0268

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Subject: Brunswick Steam Electric Plant, Unit No. 1  
Renewed Facility Operating License No. DPR-71  
Docket No. 50-325  
Licensee Event Report 1-2020-003

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Duke Energy Progress, LLC, is submitting the enclosed Licensee Event Report (LER). This report fulfills the requirement for a written report within sixty (60) days of a reportable occurrence.

This document contains no regulatory commitments.

Please refer any questions regarding this submittal to Ms. Sabrina Salazar, Manager – Nuclear Support Services, at (910) 832-3207.

Sincerely,

A handwritten signature in black ink, appearing to read "John A. Krakuszeski".

John A. Krakuszeski

SBY/sby

Enclosure: Licensee Event Report

U.S. Nuclear Regulatory Commission

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cc (with enclosure):

Ms. Laura Dudes, NRC Regional Administrator, Region II

Mr. Andrew Hon, NRC Project Manager

Mr. Gale Smith, NRC Senior Resident Inspector

Chair - North Carolina Utilities Commission



## LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)  
(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [InfoCollect.Resource@nrc.gov](mailto:InfoCollect.Resource@nrc.gov), and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk at: [oina\\_submission@omb.eop.gov](mailto:oina_submission@omb.eop.gov). The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

## 1. Facility Name

Brunswick Steam Electric Plant (BSEP), Unit 1

## 2. Docket Number

05000325

## 3. Page

1 OF 3

## 4. Title

Automatic Specified System Actuations due to Loss of Offsite Power

## 5. Event Date

Month	Day	Year
08	03	2020

## 6. LER Number

Year	Sequential Number	Revision No.
2020	- 003 -	00

## 7. Report Date

Month	Day	Year
09	21	2020

## 8. Other Facilities Involved

Facility Name	Docket Number
Brunswick, Unit 2	05000324
Facility Name	Docket Number
	05000

## 9. Operating Mode

1

## 10. Power Level

019

## 11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)

<input checked="" type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input checked="" type="checkbox"/> 10 CFR Part 73
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input checked="" type="checkbox"/> 10 CFR Part 21	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(1)(i)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input checked="" type="checkbox"/> 10 CFR Part 50	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	

☐ OTHER (Specify here, in abstract, or NRC 366A).

## 12. Licensee Contact for this LER

## Licensee Contact

Sabrina Salazar, Manager – Nuclear Support Services

## Phone Number (Include area code)

(910) 832-3207

## 13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS

## 14. Supplemental Report Expected

☒ No ☐ Yes (If yes, complete 15. Expected Submission Date)

## 15. Expected Submission Date

Month	Day	Year

## 16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

At 23:02 Eastern Daylight Time on August 3, 2020, with Unit 1 in Mode 1 at approximately 19% power during Hurricane Isaias, a loss of the transformer bus powering the Startup Auxiliary Transformer (SAT) resulted in a Loss of Offsite Power (LOOP). By design, all Main Steam Isolation Valves closed and an automatic reactor scram occurred. All control rods inserted as expected on the scram. At the time of this event the main generator was removed from service due to unrelated generator ground issues and all plant loads were being supplied by the SAT.

By design, the LOOP resulted in automatic actuation of Primary Containment Isolation System (PCIS) Group 1, 2, 3, 6, and 8 isolation valves. In addition, all four emergency diesel generators (EDGs) started, with EDGs 1 and 2 loading to their respective emergency buses per design. Reactor water level reached low level 1 following the scram resulting in automatic actuation of PCIS Groups 2, 6, and 8, by design.

The electrical fault that caused the transformer bus powering the SAT to trip and subsequent LOOP was determined to be a result of storm generated debris.

There was no impact on the health and safety of the public or plant personnel. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) due to valid actuation of the Reactor Protection System, PCIS, and EDGs.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000- 325	2020	- 003	- 00

**NARRATIVE**

Energy Industry Identification System (EIIIS) codes are identified in the text as [XX].

**Background*****Initial Conditions***

At the time of the event, Unit 1 was in Mode 1 (i.e., Power Operation), at approximately 19 percent rated thermal power. Unit 2 was in Mode 1 (i.e., Power Operation), at approximately 100 percent rated thermal power.

***Reportability Criteria***

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) because it involved actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B). Specifically, the Reactor Protection System (RPS) [JC], Primary Containment Isolation System (PCIS) [JM], and the Emergency Diesel Generators (EDGs) [EK] actuated during this event.

Per 10 CFR 50.72(a)(1)(i), the NRC was notified of an Unusual Event (UE) being declared via Event Notification 54812 at 23:31 Eastern Daylight Time (EDT) on August 3, 2020. The NRC was notified of the RPS [JC] actuation while critical and the valid specified system actuations per 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A), respectively, via an update to Event Notification 54812 at 01:20 EDT on August 4, 2020.

**Event Description**

At 23:02 EDT on August 3, 2020, with Unit 1 in Mode 1 at approximately 19% power during Hurricane Isaias, a loss of the transformer bus powering the Startup Auxiliary Transformer (SAT) [EA] resulted in a Loss of Offsite Power (LOOP). By design, all Main Steam Isolation Valves (MSIVs) [JM] closed and an automatic reactor scram occurred. All control rods inserted as expected on the scram.

At the time of this event the main generator was removed from service and all plant loads were being supplied by the SAT. Power had been lowered to 19% prior to the event in preparation for shutting down for maintenance associated with unrelated generator ground issues.

By design, the LOOP resulted in automatic actuation of Primary Containment Isolation System (PCIS) Group 1 (i.e., main steam), Group 2 (i.e., floor and equipment drain), Group 3 (i.e., reactor water cleanup), Group 6 (i.e., monitoring and sampling), and Group 8 (i.e., shutdown cooling) isolation valves. In addition, all four emergency diesel generators (EDGs) started, with EDGs 1 and 2 loading to their respective emergency buses per design. Reactor water level reached low level 1 following the scram resulting in automatic actuation of PCIS Groups 2, 6, and 8, by design.

At 23:12 EDT on August 3, 2020, Unit 1 declared a UE due to the LOOP. The UE was exited at 14:54 on August 4, 2020.

**Event Cause**

Extensive investigation and testing concluded that the electrical fault that caused the transformer bus powering the SAT to trip and subsequent LOOP was not a result of an equipment failure. The fault was determined to be a result of storm generated debris from Hurricane Isaias.

**Safety Assessment**

There was no adverse impact on the health and safety of the public. The safety significance of this event is minimal. The automatic reactor trip was as expected, and all safety related systems operated as designed.

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Brunswick Steam Electric Plant (BSEP), Unit 1	05000- 325	2020	- 003	- 00

**NARRATIVE****Corrective Actions**

Testing on all components that could have caused the electrical fault was completed on August 7, 2020. Resetting and re-energizing the Unit 1 Transformer Bus and placing load on the Unit 1 SAT was completed on August 9, 2020.

**Previous Similar Events**

No events have occurred within the past three years in which a LOOP has occurred.

**Commitments**

No regulatory commitments are contained in this report.